

SEQUENCE LISTING

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<120> Cell Cycle Targets and Peptides

<130> 021044-002430PC

<140> WO PCT/US03/34669

<141> 2003-10-30

<150> US 60/422,912

<151> 2002-10-30

<150> US 60/460,845

<151> 2003-04-04

<160> 58

<170> PatentIn Ver. 2.1

<210> 1

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:peptide 35,
peptide 88, peptide 35/88

<400> 1

Arg Leu Arg Arg Ile Cys Ser Gly Ile Leu Leu Ile Arg Arg Ile Leu
1 5 10 15

Gly Ile Phe Val
20

<210> 2

<211> 4

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:C-terminus
vector-derived sequence

<400> 2

Arg Pro Val Arg
1

<210> 3

<211> 5

<212> PRT

<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:C-terminus
vector-derived sequence

<400> 3
Arg Pro Val Arg Pro
1 5

<210> 4
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:peptide 38

<400> 4
Thr Ser Gly Leu Leu Lys Leu Val Gln Ala Lys Arg Lys Cys Cys Ile
1 5 10 15

Ser

<210> 5
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:peptide 40

<400> 5
Arg Trp Asp Pro Thr Arg Leu Leu Arg Phe Arg Phe Leu Arg Met Leu
1 5 10 15

Val Arg Arg Ser
20

<210> 6
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:peptide 41

<400> 6
Gly Arg Gly Cys Ile Phe Arg Trp Arg Arg Gly Leu Arg Gly Met Met
1 5 10 15

Arg Leu Phe Lys
20

<210> 7
<211> 7
<212> PRT
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:lysine residues
fused to N-terminus, K7, lys7

<400> 7

Lys Lys Lys Lys Lys Lys
1 5

<210> 8

<211> 78

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:nucleotide
sequence encoding peptide 35/88

<400> 8

cggctccgga gaatatgtag cggcattctg ctcattccgta ggatattggg cattttcgtt 60
aggcccgtga ggccctaa 78

<210> 9

<211> 53

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:nucleotide
sequence encoding peptide 38

<400> 9

actagtgggt tgctgaagct ggtgcaggct aagcgtaagt gttgtattag tta 53

<210> 10

<211> 78

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:nucleotide
sequence encoding peptide 40

<400> 10

cgttgggata cgacgcgatt gctgcgattt cggttcctcc ggatgctagt gaggcggagt 60
aggcccgtga ggccctaa 78

<210> 11

<211> 63

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:nucleotide
sequence encoding peptide 41

<400> 11
 ggaaggggat gtatcttttcg atggaggaga ggcctgcggg gaatgatgag actattttaag 60
 tag 63

<210> 12
 <211> 8
 <212> PRT
 <213> Artificial Sequence

<220>
 <221> MOD_RES
 <222> (1)..(3)
 <223> Xaa = large hydrophobic amino acid selected from
 the group Leu, Ile, Phe, Met, Tyr or Trp, wherein
 at least one is Leu or Ile, Xaa at position 3 may
 be present or absent

<220>
 <221> MOD_RES
 <222> (4)..(6)
 <223> Xaa = large hydrophobic amino acid selected from
 the group Leu, Ile, Phe, Met, Tyr or Trp, wherein
 at least one is Leu or Ile, Xaa at position 6 may
 be present or absent

<220>
 <221> MOD_RES
 <222> (7)..(8)
 <223> Xaa = large hydrophobic amino acid selected from
 the group Leu, Ile, Phe, Met, Tyr or Trp, wherein
 at least one is Leu or Ile

<220>
 <223> Description of Artificial Sequence:peptide motif

<400> 12
 Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 1 5

<210> 13
 <211> 6
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:linker

<400> 13
 Glu Glu Ala Ala Lys Ala
 1 5

<210> 14
 <211> 37
 <212> PRT
 <213> Artificial Sequence

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<220>
<223> Description of Artificial Sequence:biotinylated
      peptide 40 fused to C-terminus of GFP

<220>
<221> MOD_RES
<222> (1)
<223> Xaa = biotinylated Gly

<400> 14
Xaa Met Asp Glu Leu Tyr Lys Glu Glu Ala Ala Lys Ala Arg Trp Asp
   1             5             10             15

Pro Thr Arg Leu Leu Arg Phe Arg Phe Leu Arg Met Leu Val Arg Arg
   20             25             30

Ser Arg Pro Val Arg
   35

<210> 15
<211> 37
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:inactive
      biotinylated alanine mutant of peptide 40

<220>
<221> MOD_RES
<222> (1)
<223> Xaa = biotinylated Gly

<400> 15
Xaa Met Asp Glu Leu Tyr Lys Glu Glu Ala Ala Lys Ala Arg Trp Asp
   1             5             10             15

Pro Thr Arg Ala Leu Arg Ala Arg Phe Ala Arg Ala Leu Val Arg Arg
   20             25             30

Ser Arg Pro Val Arg
   35

<210> 16
<211> 33
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:peptide 41
      fused to C-terminus of GFP

<400> 16
Gly Met Asp Glu Leu Tyr Lys Glu Glu Ala Ala Lys Ala Gly Arg Gly
   1             5             10             15

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Cys Ile Phe Arg Trp Arg Arg Gly Leu Arg Gly Met Met Arg Leu Phe
20 25 30

Lys

<210> 17
<211> 54
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:nucleotide
sequence of peptide 38 with in-frame stop codon

<400> 17
actagtgggt tgctgaagct ggtgcaggct aagcgtaagt gttgtattag ttag 54

<210> 18
<211> 25
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:peptide #40

<400> 18
Arg Trp Asp Pro Thr Arg Leu Leu Arg Phe Arg Phe Leu Arg Met Leu
1 5 10 15

Val Arg Arg Ser Arg Pro Val Arg Pro
20 25

<210> 19
<211> 25
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:peptide #88

<400> 19
Arg Leu Arg Arg Ile Cys Ser Gly Ile Leu Leu Ile Arg Arg Ile Leu
1 5 10 15

Gly Ile Phe Val Arg Pro Val Arg Pro
20 25

<210> 20
<211> 40
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:variant of
synthetic peptide #40 with N-terminus seven Lys
and linker, K7_40

<400> 20

Lys Lys Lys Lys Lys Lys Lys Gly Gly Glu Glu Ala Ala Lys Ala Arg
1 5 10 15

Trp Asp Pro Thr Arg Leu Leu Arg Phe Arg Phe Leu Arg Met Leu Val
20 25 30

Arg Arg Ser Arg Pro Val Arg Pro
35 40

<210> 21

<211> 40

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:variant of
synthetic peptide #40 with N-terminus seven Lys
and linker and alanine mutated residues, K7_40 M

<400> 21

Lys Lys Lys Lys Lys Lys Lys Gly Gly Glu Glu Ala Ala Lys Ala Arg
1 5 10 15

Trp Asp Pro Thr Arg Ala Leu Arg Ala Arg Phe Ala Arg Ala Leu Val
20 25 30

Arg Arg Ser Arg Pro Val Arg Pro
35 40

<210> 22

<211> 35

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:variant of
synthetic peptide #41 with N-terminus seven Lys
and linker, K7_41

<400> 22

Lys Lys Lys Lys Lys Lys Lys Gly Gly Glu Glu Ala Ala Lys Ala Gly
1 5 10 15

Arg Gly Cys Ile Phe Arg Trp Arg Arg Gly Leu Arg Gly Met Met Arg
20 25 30

Leu Phe Lys
35

<210> 23

<211> 35

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:variant of
synthetic peptide #41 with N-terminus seven Lys
and linker and alanine mutated residues, K7_41 M

<400> 23

Lys Lys Lys Lys Lys Lys Gly Gly Glu Glu Ala Ala Lys Ala Gly
1 5 10 15

Arg Gly Cys Ile Phe Arg Ala Arg Arg Gly Ala Arg Gly Met Ala Arg
20 25 30

Ala Phe Lys
35

<210> 24

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:5 arginine
residues

<400> 24

Arg Arg Arg Arg Arg
1 5

<210> 25

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:linker

<400> 25

Gly Gly Glu Glu Ala Ala Lys Ala
1 5

<210> 26

<211> 13

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:C-terminus of
GFP and linker fused to biotinylated peptide 40,
41 and 35

<400> 26

Gly Met Asp Glu Leu Tyr Lys Glu Glu Ala Ala Lys Ala
1 5 10

<210> 27
 <211> 200
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:poly Gly
 flexible linker

<220>
 <221> MOD_RES
 <222> (6)..(200)
 <223> Gly residues from position 6 to 200 may be present
 or absent

<400> 27
 Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly
 1 5 10 15
 Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly
 20 25 30
 Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly
 35 40 45
 Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly
 50 55 60
 Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly
 65 70 75 80
 Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly
 85 90 95
 Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly
 100 105 110
 Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly
 115 120 125
 Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly
 130 135 140
 Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly
 145 150 155 160
 Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly
 165 170 175
 Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly
 180 185 190
 Gly Gly Gly Gly Gly Gly Gly Gly Gly
 195 200

<210> 28
 <211> 24
 <212> PRT
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:proliferating
cell nuclear antigen (PCNA)-binding C-terminal
peptide of tumor suppressor p21 (p21C)

<400> 28

Lys Arg Arg Gln Thr Ser Met Thr Asp Phe Tyr His Ser Lys Arg Arg
1 5 10 15

Leu Ile Phe Ser Lys Arg Lys Pro
20

<210> 29

<211> 25

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:peptide #40
alanine mutant (M15A)

<400> 29

Arg Trp Asp Pro Thr Arg Leu Leu Arg Phe Arg Phe Leu Arg Ala Leu
1 5 10 15

Val Arg Arg Ser Arg Pro Val Arg Pro
20 25

<210> 30

<211> 25

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:peptide #40
alanine mutant (L13A/M15A)

<400> 30

Arg Trp Asp Pro Thr Arg Leu Leu Arg Phe Arg Phe Ala Arg Ala Leu
1 5 10 15

Val Arg Arg Ser Arg Pro Val Arg Pro
20 25

<210> 31

<211> 25

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:peptide #40
alanine mutant (F10A/L13A/M15A)

<400> 31
Arg Trp Asp Pro Thr Arg Leu Leu Arg Ala Arg Phe Ala Arg Ala Leu
1 5 10 15

Val Arg Arg Ser Arg Pro Val Arg Pro
20 25

<210> 32
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:peptide #41
alanine mutant (L18A)

<400> 32
Gly Arg Gly Cys Ile Phe Arg Trp Arg Arg Gly Leu Arg Gly Met Met
1 5 10 15

Arg Ala Phe Lys
20

<210> 33
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:peptide #41
alanine mutant (M16A/L18A)

<400> 33
Gly Arg Gly Cys Ile Phe Arg Trp Arg Arg Gly Leu Arg Gly Met Ala
1 5 10 15

Arg Ala Phe Lys
20

<210> 34
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:peptide #41
alanine mutant (L12A/M16A/L18A)

<400> 34
Gly Arg Gly Cys Ile Phe Arg Trp Arg Arg Gly Ala Arg Gly Met Ala
1 5 10 15

Arg Ala Phe Lys
20

<210> 35
<211> 25
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:peptide #88
alanine mutant (I18A)

<400> 35
Arg Leu Arg Arg Ile Cys Ser Gly Ile Leu Leu Ile Arg Arg Ile Leu
1 5 10 15

Gly Ala Phe Val Arg Pro Val Arg Pro
20 25

<210> 36
<211> 25
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:peptide #88
alanine mutant (L16A/I18A)

<400> 36
Arg Leu Arg Arg Ile Cys Ser Gly Ile Leu Leu Ile Arg Arg Ile Ala
1 5 10 15

Gly Ala Phe Val Arg Pro Val Arg Pro
20 25

<210> 37
<211> 25
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:peptide #88
alanine mutant (I12A/L16A/I18A)

<400> 37
Arg Leu Arg Arg Ile Cys Ser Gly Ile Leu Leu Ala Arg Arg Ile Ala
1 5 10 15

Gly Ala Phe Val Arg Pro Val Arg Pro
20 25

<210> 38
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:leucine-rich
motif of HIV-1 Rev (amino acid position 75-84)

<400> 38

Leu Pro Pro Leu Glu Arg Leu Thr Leu Asp
1 5 10

<210> 39

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:leucine-rich
motif of Mitogen-activated protein kinase kinase
1, MAPKK (amino acid position 33-43)

<400> 39

Leu Gln Lys Lys Leu Glu Glu Leu Glu Leu Asp
1 5 10

<210> 40

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:leucine-rich
motif of HTLV-1 Rex (amino acid position 82-93)

<400> 40

Leu Ser Ala Gln Leu Tyr Ser Ser Leu Ser Leu Asp
1 5 10

<210> 41

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:leucine-rich
motif of Human homologue of mouse double minute
2, Hdm-2 (amino acid position 190-200)

<400> 41

Ile Ser Leu Ser Phe Asp Glu Ser Leu Ala Leu Cys
1 5 10

<210> 42

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:leucine-rich
motif of Protein kinase inhibitor, PKI (amino acid
position 38-48)

<400> 42
Leu Ala Leu Lys Leu Ala Gly Leu Asp Ile Asn
1 5 10

<210> 43
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:C-terminal 17
residues of cell division cycle 42 isoform 2,
CDC42C (amino acid position 183-191)

<400> 43
Ala Ala Leu Glu Pro Pro Glu Thr Gln Pro Lys Arg Lys Cys Cys Ile
1 5 10 15

Phe

<210> 44
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:peptide
#38Ndelta(1-8)

<400> 44
Gln Ala Lys Arg Lys Cys Cys Ile Ser
1 5

<210> 45
<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:peptide
#38Ndelta(1-13)

<400> 45
Cys Cys Ile Ser
1

<210> 46
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:peptide
#38(T1A)

<400> 46

Ala Ser Gly Leu Leu Lys Leu Val Gln Ala Lys Arg Lys Cys Cys Ile
1 5 10 15

Ser

<210> 47

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:peptide
#38(S2A)

<400> 47

Thr Ala Gly Leu Leu Lys Leu Val Gln Ala Lys Arg Lys Cys Cys Ile
1 5 10 15

Ser

<210> 48

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:peptide
#38(G3A)

<400> 48

Thr Ser Ala Leu Leu Lys Leu Val Gln Ala Lys Arg Lys Cys Cys Ile
1 5 10 15

Ser

<210> 49

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:peptide
#38(L4A)

<400> 49

Thr Ser Gly Ala Leu Lys Leu Val Gln Ala Lys Arg Lys Cys Cys Ile
1 5 10 15

Ser

<210> 50

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:peptide
#38 (L5A)

<400> 50

Thr Ser Gly Leu Ala Lys Leu Val Gln Ala Lys Arg Lys Cys Cys Ile
1 5 10 15

Ser

<210> 51

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:peptide
#38 (K6A)

<400> 51

Thr Ser Gly Leu Leu Ala Leu Val Gln Ala Lys Arg Lys Cys Cys Ile
1 5 10 15

Ser

<210> 52

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:peptide
#38 (L7A)

<400> 52

Thr Ser Gly Leu Leu Lys Ala Val Gln Ala Lys Arg Lys Cys Cys Ile
1 5 10 15

Ser

<210> 53

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:peptide
#38 (V8A)

<400> 53

Thr Ser Gly Leu Leu Lys Leu Ala Gln Ala Lys Arg Lys Cys Cys Ile
1 5 10 15

Ser

<210> 54
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:peptide
#38(C14A)

<400> 54
Thr Ser Gly Leu Leu Lys Leu Val Gln Ala Lys Arg Lys Ala Cys Ile
1 5 10 15

Ser

<210> 55
<211> 24
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:peptide 40

<400> 55
Arg Trp Asp Pro Thr Arg Leu Leu Arg Phe Arg Phe Leu Arg Met Leu
1 5 10 15

Val Arg Arg Ser Arg Pro Val Arg
20

<210> 56
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Human homologue
of mouse double minute 2, HDM-2

<400> 56
Leu Ser Leu Ser Phe Asp Glu Ser Leu Ala Leu Cys
1 5 10

<210> 57
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:N-terminal
sequence of peptides 35, 40 and 41 synthesized
with C-terminus of GFP and spacer residues

<220>
<221> MOD_RES
<222> (1)
<223> Xaa = biotinylated Gly

<400> 57

Xaa Met Asp Glu Leu Tyr Lys Glu Glu Ala Ala Lys Ala
1 5 10

<210> 58

<211> 6

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:C-terminus
of GFP

<400> 58

Met Asp Glu Leu Tyr Lys
1 5